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ABSTRACT

A description of several different approaches used to obtain information about college environments is given. Those seeking such information include high school seniors, college administrators, student personnel workers, counselors, and college presidents. Guides published detailing this information include the "American Universities and Colleges," which includes basic factual information on more than 1,250 institutions; and the "College Handbook," which includes similar information, plus detailed information about the academic ability of incoming freshmen. Another source of information centered around Pace's assessing the personality needs of an individual and the presses of his environment which influence his bahavior. Another attempt is Astin's stimulus approach. It is concluded that environmental measures need to be tied more closely to theory and to practice. (CK)

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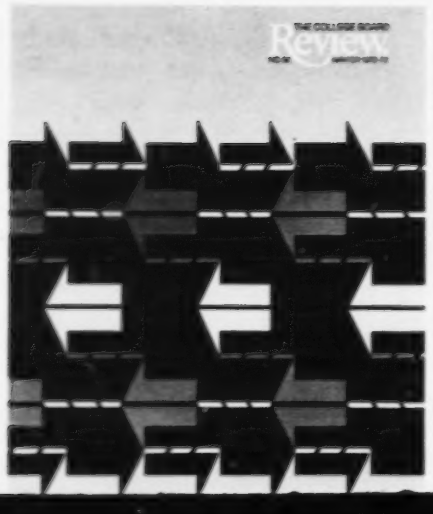
Focusing on Measures of College Environments

by Leonard L. Baird



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- *A high school senior choosing colleges would like to know what they are really like.*
- *A college administrator would like to know how students and faculty feel about his college's programs and facilities so that he can make the needed changes.*
- *A student personnel worker who has organized an experimental living group program in the dormitories would like to know if the college experiences of the students in his group are different from those of most students.*
- *A counselor working with students who are potential dropouts would like to know why these students have been turned off by the college.*
- *A college president who has brought in many reforms at his college would like to know if his reforms have changed the social and intellectual atmosphere of his college.*

Each of these people needs to know about the college community and the interplay among its people, policies, and facilities. In a word, they need to know about college "environments." Their purposes differ, of course, but their basic need for reliable, accurate information is the same. This article describes several different approaches people have used to obtain that information. Three of these ways will be discussed in some detail—a perceptual approach, a factual approach, and an approach that combines both. Some other approaches will be touched on briefly. But before we get into the details, it seems useful to look at the history of the development of such information about colleges.

At the turn of the century only about four percent of the 18- to 21-year old age group attended college. By 1920 this figure was eight percent; by 1940, 16 percent; and by fall 1972, 56 percent. These statistics suggest that relatively few high school students needed information about colleges until after World War II. In the early years many students chose their colleges on the basis of proximity, well-known reputations, and costs. Students had to rely on folklore, propaganda from the colleges, and informal opinions. In more recent years students have realized the complexity of college choice and have sought better information about colleges. Similarly, as colleges expanded in the 1940s and 1950s, they assumed increasingly complex social and educational roles. Colleges began to examine themselves in self-study programs. Many colleges found that they needed to compare themselves with other colleges in order to understand themselves better.

Thus, as colleges and enrollments grew in the 1920s, 1930s, and 1940s the need for comparative information also grew bringing in the era of published comparative guides. The first truly comprehensive guide was published by the American Council on Education (ACE) in 1928. This guide, *American Universities and Colleges*, summarized, for the first time, basic factual information about 400 accredited institutions. Now in its tenth edition (2), the guide includes basic factual information about many aspects of more than 1,250 institutions. The entry for each college includes a brief description of its general features, history, governance, calendar, admissions requirements, degree requirements, teaching staff, special programs, fees, financial aid, enrollment, student life, library, finances, and buildings and grounds and often, academic ability of freshmen.

The *College Handbook*, published much later by the College Board, included similar information, plus detailed information about the academic ability of incoming freshmen. These and other guides provided a great deal of information that a student could use to choose a college. But the information in the guides remained unanalyzed and uninterpreted raw data. There was no easy way for a student or a counselor to know what information was critical, and no way to know what the college was really like, particularly from the colleges' descriptions of them-

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selves. For these reasons, writers like James Cass and Max Birnbaum (12) developed capsule descriptions of colleges based on information such as that presented in the ACE and Board guides, in some cases supplemented by a close examination of the catalogue, the student newspaper, etc. These interpretations occasionally provide quite accurate descriptions of the very unusual college environment, but they are at best only a rough guide to most colleges. Moreover, the guides do not compare colleges on any common dimensions other than how selective they are. Thus, while immensely better than local opinion, the comparative guide approach still does not allow students to compare colleges on clearly defined and measured dimensions. The guide descriptions can present the unique features of each college, but they do not help us understand the multitude of ways colleges systematically differ from one another. While they can help a student choose a college, an administrator can't use them to make his college more efficient or effective, nor can a counselor use them to study his college's influence on students' values, vocational choices or intellectual growth. Another approach was needed.

How student and school interact

The next attempts to gain an understanding of college environments were based on personality theory and clinical psychology. At Syracuse University Robert Pace and George Stern began to work with the idea that a student's behavior will depend not only on his personality but on the demands of a college and the interaction between his personality and the college. For example, a rigid student may do well in a structured college class but do poorly in an unstructured one. Specifically, Pace and Stern attempted to implement some ideas of the Harvard psychologist, Henry Murray, about the personality "needs" of an individual and the "presses" of his environment which influence his behavior. Individual needs were measured by Stern's personality test, the *Activities Index* (AI). Environmental presses—the rewards, constraints, and emphases of the environment as perceived by the individual—were measured by the *College Characteristics Index* (CCI). Murray's theories did not require that one think of needs and presses in the same way, but for the purpose of exploring the potential value of their instrument, Pace and Stern designed the CCI scales to parallel the AI scales. The original research (27) was addressed to a practical problem, that of improving the prediction of college academic performance by studying student-college "fit." For example, a student with a high need for friendship supposedly should make better grades in a warm, friendly college than in an impersonal, unfriendly one.

The basic idea behind the CCI as well as later perceptual measures is that of an opinion poll of the campus. Students, faculty and administrators may be asked to be "reporters" giving their opinions of what the college is like. The CCI had 300 true-false items about the college environment, which were scored for 30 ten-item scales. Some items were like personality test items and many of the scales seemed strange and strained when applied to the environment rather than personality. For example, the terms, "harm-avoidance" and "narcissism" did not seem to apply to colleges very well. Furthermore, the large number of esoteric scales made it difficult to describe a college's environment in parsimonious terms. Finally, the unit used in the statistical analyses of the CCI was individual students' responses, rather than colleges.

For these reasons, Pace (24) began to use a different approach. Pace abandoned the press-need parallelism, used the average scores of colleges as the unit of analysis, and selected items that seemed directly relevant to the college experience. Finally, Pace used the statistical techniques of cluster analysis and factor analysis to reduce the number of scales to reflect only the major ways colleges differed from one another. Pace emphasized the college environment, not only because he was interested in environments, but also because studies had shown that the ways peoples' personalities differed was independent of the way college environments differed. In other words, the need-press system did not seem to hold up, at least as originally conceived (Pace, 24; Saunders, 37; Stern, 39). The outcome of Pace's analyses was the *College and University Environment Scales* (CUES). CUES originally consisted of 150 items drawn from the CCI, and provided 30 item scales on five dimensions: Pragmatism, reflecting the college's emphasis on practicality, status and college fun; Community, reflecting the friendliness and warmth of the campus; Awareness, reflecting an active cultural and intellectual life; Propriety, reflecting properness and conventionality; and Scholarship, reflecting the academic rigor of the college. Pace (24) related these scales to a variety of other information about colleges to establish their validity. For example, among colleges with high Scholarship scores, a greater proportion of the faculty held doctorates. Small colleges were more likely than large colleges to have high Community scores.

Measures of student and faculty perceptions of the environment have several difficulties. First, and most fundamental, is the ambiguity of what an aggregate perception of an environment means. A person's perceptions of a social situation depend on many things, as Feldman (13) has pointed out. Students' interests and characteristics help determine

An Unusual Approach: Anthropological Vignettes

Anthropological vignettes are based on the observations and interpretations of an expert investigator, who writes a description of the main features and characteristics of an environment. The investigator attempts to apply his general knowledge of social, educational, and organizational structures to a particular situation.

The descriptions are realistic, particularly in the way they can point up the complex interactions of the multitude of personal and social variables that go into a college. However the method cannot readily be quantified, seldom leads to precise judgments, and is costly and time consuming. (A thorough study would require living in the environment for some time.) Finally, it greatly depends on the knowledge and awareness of the investigator, which can vary greatly, not only from person to person but from college to college and occasion to occasion.

Even such astute observers as Riesman and Jencks (31) can misinterpret an environment. For example, they described San Francisco State as a quiet, docile, unstimulating commuters' campus. ". . . faced with an idea, only a few students will pursue it with excitement, but neither will they reject or resent it. Rarely are they interested in brooding on their studies, but are at least willing to assimilate the subject-matter put before them. . . . Intellectual indolence inevitably thrives among physically exhausted students who simply look blank if they are asked what they do with their leisure time." As Pace (23) has pointed out, this description seemed to be untrue, not only because of the turbulent events on the campus in recent years, but because the students described the campus as a stimulating and activist environment on a perceptual measure. In brief, this method seems unreliable and impracticable on a large scale.

the colleges they choose to attend. Students' characteristics then form part of the total environment. For example, the presence of many bright intellectual students may lead an individual student to perceive the whole college as intellectual. In addition, students select subgroups, major fields, courses, and activities consistent with their interests and characteristics. Professors and administrators will likewise have different patterns of experiences. These experiences will compose their sampling of the total physical and interpersonal environment, and thus the way they "perceive" the environment. And even these perceptions are influenced by their personal characteristics and social position. For example, when a student thinks of his college, he may think first of his classes, a president may have uppermost in his thoughts the budget, a professor his research, and a dean his work with curriculum reform. This problem may be particularly difficult when there are subenvironments in the campus, since the scoring of the instruments sums across the subenvironments. For example, at a highly politicized college the disparate perceptions of a leftist subgroup and a conservative subgroup may cancel each other out and the college would appear to be nonpolitical on the environmental measure. Having said this, we should note that Pace (21) and Hartnett and Centra (18) have provided evidence that personal characteristics have little influence on environment scores, and that environmental scores for subgroups are seldom different from the scores of the majority. Although subgroups may have different college experiences, they seem to describe the total environment in much the same way. However, as Pace and Baird (25) among others have shown, if one uses environmental instruments designed to be sensitive to subgroup differences, one can find many large and systematic differences between subgroups.

It is also clear that the accuracy of perceptions depends on the knowledge of the respondent, a factor which will vary from person to person and area to area. For example, most students will know very little about some aspects of faculty life, and commuting students will have little to say about life in the dormitories. Furthermore, some respondents may report stereotypes or rumors, particularly when an item refers to activities that are not publicly visible; for example, when a student believes that other students do not study very much, just because he cannot see them study.

A major limitation of the perceptual approach is that a person can only describe those aspects on his college covered by the items in the instrument and only in the particular way the items allow. This difficulty is increased since the items in environmental instruments, of necessity, tend to be general and without precise referents. The items must refer to things that are common to all or most colleges, and then must be phrased in such a way that they can be answered by people from any subgroup of the college.

Since many of the important aspects of the atmosphere of a college tend to be elusive and can only be captured by items that ask for the respondent's overall impressions, even the most skillfully prepared items will appear vague or ambiguous. Furthermore when the responses of individuals to each item are combined with those of the other respondents, they reflect the degree of consensus among the reporters as well as the intensity of the environment. For example, when half of the students only moderately agree that "the college encourages individual freedom" it is quite different than when half strongly agree and half strongly disagree with the item. The items are then typically summed on a scale, the meaning of which has been decided by the authors of the instrument. The scores are returned to the persons on campus who interpret the scores in terms of their own understanding of the scales and their college.

Because of the generality and ambiguity of perceptual measures, they are not very useful to people who want to evaluate or change their colleges. For example, what can an administrator do if he finds that his college scored at the 50th percentile on a scale of "friendliness"? He finds nothing in the score to serve as a guide to action. He doesn't know if the 50th percentile is good or bad. He is not sure what the "friendliness" scale really measures. A student choosing a college may find perceptual scores more useful. The student's problem is that the colleges he is interested in may not have used the perceptual measure, or the colleges may not make their scores publicly available, particularly if they don't like the results.

Finally, perceptual measures have no roots in theory. No environmental measure is based on any theory of the social psychology of groups, the psychology of learning environments, or the psychology of organizations. Thus, an environmental measure provides little data about the social psychology of the environment.

Other Perceptual Measures

Donald Thistlethwaite (40, 41), now at Vanderbilt University, developed scales from OCI items that distinguished between two groups of colleges—those that had produced a large number of graduates who went on to obtain a doctoral level degree, and those that had not been productive. He controlled for the average ability level of the students, and developed scales measuring the faculty press and student press associated with scholarly productivity.

ETS psychologist Richard Peterson (28) developed the *College Student Questionnaire* (CSQ), a two-part instrument. The first part was designed to assess student characteristics as freshmen and the second part to assess their characteristics later in their college careers, and their satisfactions with their college.

The American College Testing Program developed the *Institutional Self-Study Service* (1). It provides data about students' educational and occupational plans, backgrounds, college goals, college activities, college accomplishments, and satisfaction with college policies, practices, facilities, and student personnel services. It also asks students to describe their instructors and their sense of progress toward attaining college goals.

A group of ETS researchers (Richard Peterson, John Centra, Rodney Hartnett, and Robert Linn) developed the *Institutional Functioning Inventory* or IFI (30). The IFI grew out of a study of "institutional vitality." The dimensions are designed to assess the extent to which colleges were "functioning optimally" in areas to which they were ostensibly committed. The dimensions include such areas as "freedom," "meeting local area needs," and "institutional esprit."

The *Institutional Goals Inventory* was developed by Norman Uhl and Richard Peterson with a specific use in mind: to help colleges examine the degree of consensus of campus opinion about various institutional goals and to produce an ordering of the priorities of these goals. Using a strategy developed by the sociologists Gross and Grambsch (17), the items state a goal, and the respondent rates it in terms of the extent to which: (a) the goal "is" in practice, or "is" emphasized at the college and (b) "should be" implemented or emphasized. By comparing the mean "is" and "should be" responses, one may see how far the present campus goal structure is from the one people would prefer and identify areas where changes may be needed.

Students' Responses Analyzed

Stern (38, 39) like Pace, also subsequently factor analyzed the CCI, but used individual students' responses as the unit of analyses. Technically, this meant he had analyzed the variance between students' perceptions of colleges in general, rather than the variance between colleges. The dimensions identified are therefore the dimensions of the ways different students view colleges, rather than the dimensions of the ways colleges differ from one another as reflected in the perceptions of their students. Stern has reported second order factor analyses of the CCI and developed versions for use in high schools, evening colleges, and organizations. Stern (39) has also attempted to describe the "culture" of colleges by factor analyzing the Activities Index and the CCI together, and then describing colleges in joint terms of the characteristics of their students and students' perceptions of the environments.

As the University of Michigan sociologists Kenneth Feldman and Theodore Newcomb have pointed out: "To know whether the 'is' of the environment represents pressures on students, one needs to know such things as the degree to which there is shared awareness about the desirability of certain attitudes and behaviors, the structural arrangements and systems of rewards and punishments that implement and ensure conformity to norms, and the degree to which individuals accept these norms." (16)

In other words, to have better environmental measures we need better ideas about how the college environment works.

Thus, interpreting an environmental description based on perceptual responses involves many steps that make its meaning somewhat uncertain. And the vagueness makes it difficult to use. Is there some way to clear up the ambiguity?

A second approach, which does avoid some of the ambiguity of the perceptual approach, analyzes factual information about colleges to assess their environments. As one example, Alexander Astin and John Holland (8), at that time researchers at the National Merit Scholarship Program, developed the Environmental Assessment Technique (EAT) which is based on the assumption that: "... the college environment depends on the personal characteristics of the students, faculty, administration, and staff of the institution. Since the undergraduate's personal contacts are chiefly with fellow students, it is further assumed that the major portion of the student's environment is determined by the characteristics of his fellow students. Accordingly the environment was defined in terms of eight characteristics of the student body: average intelligence, size, and six personal orientations based on the proportions of the students in six broad areas of study." (7)

The "orientations" were based on Holland's (19) theory of vocational choice, and were estimated by the percentage of students majoring in Realistic (or technical) fields, Scientific fields, Social fields, Conventional (or clerical) fields, Enterprising (or business and sales) fields, and Artistic fields. How did this relatively simple system work? Astin and Holland first found that the EAT variables correlated with the perceptual CCI scores. For example, the average intelligence of students was strongly related to the CCI Understanding scale, and the Realistic scale had a highly negative relation wit' the CCI Humanism scale. Astin (4) later showed that the EAT correlated with seniors' ratings of their colleges at 82 colleges. For example, he found a strong tendency among students at large colleges to report that they seldom saw professors. Most of the relations were both sizable and plausible. Altogether, Astin and Holland martialed substantial evidence that the characteristics of the student body have a considerable influence on the total environment.

Another factual strategy, also originally used by Astin (3) is to factor-analyze the factual information that can be obtained from college directories and fact books such as tuition, number of books in the library, etc. Astin did this for four-year colleges and obtained six dimensions that accounted for many of the differences between colleges (80 percent of the variance). He called the six dimensions affluence or wealth, size, private versus public control, proportion of males in the student body, technical emphasis, and homogeneity of curriculum and EAT scores. Astin (5) then used these measures to show that very bright students were less likely to aspire to the Ph.D. degree in large colleges, predominantly male colleges and colleges emphasizing clerical curricula.

As a group, the measures based on the factual approach have several advantages: they are cheap and do not require administering instruments; they show relations to measures of the college based on questionnaires; they describe the college in parsimonious terms; and they can be obtained for all colleges as Astin (6) has done. Furthermore, the measures using the idea of the Environment Assessment Technique can be used to test the theoretical predictions of Holland's system. In fact, Holland (20) and Astin (7) have studied the influence of student-college "fit" on students' vocational choices and satisfactions, finding some evidence for Holland's ideas.

Factual measures could help students choose appropriate colleges. In fact Astin's 1965 book *Who Goes Where to College?* (6) was designed to provide students with comparative scores for all four-year colleges. However this use is limited by the nature of the scores; some are quite accurate and others are not.

As useful as factual measures are in showing how colleges differ, they offer little help to the administrator who would like to assess or change his campus. This is due to the fact that, in themselves, they offer little to aid our understanding of the

How Perceptual Measures Have Been Used

The CCI and CUES have frequently been used to study differences between major fields, fraternities, sororities, and other living groups, and different classes – freshmen, sophomores, etc. One of the most interesting uses has been the comparison of the expectations of incoming freshmen with upperclassmen's perceptions of the "real" college. These studies, summarized by Feldman and Newcomb (1969), indicate that most new students – almost without regard to the actual college they are attending – expect their college to be intellectually stimulating, scholastically demanding, and friendly.

Most new students seem to hold an idealized idea of "college," which their actual college may or may not meet. Some studies have shown that the wider the gap between a student's expectation and the reality of his college, the more likely he is to have problems adjusting to college. Pace in a report on "The Use of CUES in the College Admissions Process," has suggested some ways CUES could be used to give high school students a better idea of what the kinds of colleges they are interested in are really like.

In one fascinating study in another area, Masu Sassajima, Junius Davis and Richard Peterson (36) found that colleges that scored high on the CUES Awareness scales were more likely than other colleges to have had student protests against United States militarism and for civil rights.

differences between colleges. It is important to analyze the conditions that factual characteristics create, as Feldman and Newcomb (16) have emphasized. It is even more important to attempt to account for the conditions by testable theoretical or practical ideas so that we would be able to know what will make our colleges more effective in reaching their goals. Even with a good understanding of the effects of factual conditions, much effort needs to be put into ways to translate the understanding into practice. For example, some research has shown that larger colleges are impersonal and bureaucratic but offer more facilities and options. Programs need to be developed which will allow a college to become more personal while retaining the quality and variety of its programs.

The 'stimulus' approach

Astin, who is now the director of research at the American Council on Education, has recently developed another approach to the environment which he called a "stimulus" approach (7). His idea was that the actual behaviors of students and faculty and specific features of the college represent stimuli that have an impact on each student's perceptions of the college as well as his own behavior. Astin asked students to respond to 275 relatively specific items concerning their own behaviors and the characteristics of their peers, classrooms, college rules, etc. In addition, students responded to 75 items that were similar to CUES items to analyze their "image" of their college. Astin separately analyzed the items referring to "peer," "classroom," "administrative" and "physical" environments, and found 27 dimensions by which colleges differed from one another. Analysis of the "image" items produced eight additional factors, resulting in 35 dimensions to describe the college environment. The content of the factors was clearly dependent on the particular items Astin had used. For example, the "peer environment" factors ranged from the general factor "competitiveness vs. cooperativeness" to "regularity of sleeping habits." *All* of the "administrative" environment consisted of factors whose names began with "severity of administrative policy against . . . ," since all the original items referred to rules.

Although some students may be strongly affected by rules and their enforcement, most students are more influenced by such administrative decisions as tuition, registration, degree requirements, etc. And, of course, students are influenced by administrative policies that are usually beyond their knowledge, such as requirements for hiring and promotion of faculty, allocation of the budget, etc. Thus Astin's description, in spite of its 35 dimensions, seems quite limited in some areas, even if we accept Astin's "stimulus" idea. There are other aspects of the college that serve as unperceived or indirect "stimuli."

Creager and Astin (14) analyzed Astin's scores from the research just described as well as variables from earlier factual analyses – the colleges' affluence, size, etc., and such "common-sense" variables as type of control, region of the country, etc. Most of the resulting dimensions placed great weight on the "common-sense" and factual data. This suggests that we may know almost as much about a college from a few basic facts as we would know from a much more extensive investigation. For example, the first factor, Drinking vs. Religiousness, has high negative loadings on selectivity, status, and private nonsectarian control as well as high positive loadings on severity of the policies against drinking, sex, and aggression. Thus, if we knew that a college was highly selective and prestigious, we could make a pretty good guess that it would be a free and open campus with regard to drinking, sex, etc.

Some Other Factual Measures

Astin's (2) strategy was used by Richards, Rand, and Rand (33) with junior colleges, who found six factors: cultural affluence, technological specialization, size, age, transfer emphasis and business orientation. Richards and Braskamp (32) showed that these factors were related to a wide variety of student characteristics. The junior college factors had a few similarities with the four year college factors. Subsequently, Richards, Rand, and Rand (34) used the same strategy with medical schools, and found four factors: affluence, Canadian vs. United States admissions practices, size, and hospital training emphasis.

Richards, Seligman, and Jones (35) have modified the EAT strategy by classifying the faculty and curriculum into the six types derived from Holland's theory. The basic procedure was to count the number of courses and the number of faculty members falling in each type. These measures were correlated with each other, as well as EAT and CUES scores. In the same study, Richards, Seligman, and Jones derived similar measures for graduate school environments – graduate faculty, graduate curriculum, and graduate degrees classified into the six types.

Other factors studied

The greatest weight on the second factor was given to the proportion of males at the school, the third factor to the size of the student body, the fourth to the presence of Roman Catholic colleges in the sample, and the fifth to technical institutes. The rest of the weights on these factors were consistent with general expectations about such institutions and consisted of the "stimulus" and "image" factors as well as other common sense variables. In general, many of the differences between colleges were associated with "common sense" distinctions, suggesting that some typology of institutions could be developed that would provide us with a great deal of information about colleges. For example, we know a lot about a college just by knowing that it is a selective engineering college in the Northeast, or an unselective womens' Catholic college in the Midwest. However, when Astin and Panos (9) studied the influence of college environments on the vocational and educational plans and achievements of college students, the stimulus and image measures had a considerable influence, independent of and sometimes larger than the common sense or factual variables. In predicting 28 criteria after controlling for input, common sense and factual environmental variables appeared in the equations 88 times, while "stimulus" and "image" factors appeared 68 times. The stimulus and image data seemed to be getting at something unique in college environments that influence students' development. Thus, while we may know a good deal just by knowing the facts about a college, we still need to know more to really understand its environment.

It is difficult – obviously – to assess a college's environment. A variety of approaches can be used. The purposes that the approaches are designed to serve differ. How are we to make sense of it all and find a useful approach to the college environment? Can we look to research? Unfortunately, research studies have seldom compared the approaches, and even if they were compared, it is unlikely that one approach would be clearly shown superior to others because of their diverse purposes. Ironically this very diversity may suggest a way out of the dilemma. That is, each approach seems to reflect part of the total environ-

ment of the college; each emphasizes one important aspect of the "reality" of the college. Ideally, it would be useful to have detailed information from all these approaches.

It may be useful to regroup the approaches outlined in this review and distinguish between: 1) measures based on the average characteristics of the people in the environment (e.g., Holland & Astin, 8; Richards, 34) and those based on the characteristics of the environment separate from the people in it (Baird, 10); 2) measures of *between* college differences, such as size (e.g., Pace, 24) and *within* college differences, such as fraternities; and, 3) measures useful for understanding the environment and those useful for decision making (Baird, 10; Cain & Watts, 11). This grouping of approaches provides a way of looking at the current approaches and suggests that a number of types of information need to be developed.

To illustrate some directions that might guide the development of environmental measures within this grouping, some detailed purposes are listed below:

Decision-oriented purposes of between-college measures

- To guide students to appropriate colleges
- To help students learn what to expect from their college experience so they may better adapt to the college
- To allow colleges to compare their environment with similar colleges which could lead to the identification of areas where changes are needed

Decision-oriented purposes of within-college measures

- To provide data that will help identify areas where changes are needed
- To provide data that will suggest ways to improve the environment
- To measure the effectiveness of changes
- To identify areas of agreement and disagreement about policies, goals, facilities, and priorities for the institution
- To help identify significant subgroups and subenvironments at the college and describe their characteristics

Purposes of environmental measures for understanding colleges

- To help understand the influence of college on postadolescent socialization and personal development
- To assess the significant aspects of interpersonal relations on the campus
- To measure the conditions surrounding learning
- To analyze the relations among and between students, professors, and administrators

Clearly, no one instrument would be sufficient for all these purposes. In fact, a variety of approaches would probably be needed for any single purpose. In this review, we have suggested that most measures were developed without any clear detailed rationale of exactly how they would bear on either theory or practice. The direction for future research work, therefore, would seem to be to develop instruments designed to measure those elements of the college environment that have been found to be significant in previous work and that various psychological and sociological theories would indicate are important.

On the practical side, instruments should be developed that can readily lead to actions. To do that, instruments should refer to specific aspects of the environment that can be changed by administrative action. This also implies that instruments should be developed that include the expert opinion of students about matters affecting them, faculty about matters affecting them, etc. As this review has suggested, the measures should also provide evidence about the effectiveness of administrative actions. Furthermore, the results should be easy to communicate to everyone who will be involved in any change.

In sum, environmental measures need to be tied more closely to theory and to practice. The "tying" must be placed in specific and exact terms of either how they could be used or how they could test a hypothesis. At the present time none of the measures seems to be "tied" very well. However, one may be optimistic, since attempts to measure college environments have a mere 15-year history—while attempts to measure the characteristics of individuals have at least a 70-year history (if we ignore the 2,000 years of Chinese Imperial examinations). It is not unreasonable to expect that the measurement of college environments can profit from experiences of attempts to assess personal characteristics, and that we may reach an understanding of the environment equal to our understanding of individuals. ■

References

1. American College Testing Program. *The Institutional Self-Study Service Manual, Part One: Research Planning*. Iowa City, Iowa: Author, 1970.

2. American Council on Education. *American Universities and Colleges*. Washington, D.C.: Author, 1968.

3. Alexander W. Astin. "An Empirical Characterization of Higher Educational Institutions." *Journal of Educational Psychology*. Vol. 53, 1962, Pp. 224.

4. Alexander W. Astin. "Further Validation of the Environmental Assessment Technique." *Journal of Educational Psychology*, Vol. 54, 1963, Pp. 217-226.

5. Alexander W. Astin. "Differential College Effects on the Motivation of Talented Students to Obtain the Ph.D." *Journal of Educational Psychology*, Vol. 54, 1963, Pp. 63-71.

6. Alexander W. Astin. *Who Goes Where to College*. Chicago: Science Research Associates, 1965.

7. Alexander W. Astin. *Manual for the Inventory of College Activities*. National Computer Systems, Minneapolis, 1972.

8. Alexander W. Astin & John L. Holland. "The Environmental Assessment Technique: A Way to Measure College Environments." *Journal of Educational Psychology*, Vol. 52, 1961, Pp. 306-316.

9. Alexander W. Astin & Robert J. Panos. *The Educational and Vocational Development of College Students*. Washington, D.C.: American Council on Education, 1969.

10. Leonard L. Baird. "The Functions of College Environmental Measures." *Journal of Educational Measurement*, Vol. 8, 1971, Pp. 83-86.

11. Glen G. Cain & Harold W. Watts. "Problems in Making Policy Influences from the Coleman Report." *American Sociological Review*, Vol. 35, 1970, Pp. 228-241.

12. James Cass & Max Birnbaum. *A Comparative Guide to American Colleges*. New York: Harper & Row, 1971.

13. *The College Handbook*. New York: College Entrance Examination Board, 1972.

14. John A. Creager & Alexander W. Astin. "Alternative Methods of Describing Characteristics of Colleges and Universities." *Educational and Psychological Measurement*, Vol. 28, 1968, Pp. 719-734.

15. Kenneth A. Feldman. "Measuring College Environments: Some Uses of Path Analysis." *American Educational Research Journal*, Vol. 8, 1971, Pp. 51-70.

16. Kenneth A. Feldman & Theodore M. Newcomb. *The Impact of Colleges on Students*. San Francisco: Jossey-Bass, 1969.

17. Edward Gross & Paul V. Grambsch. *University Goals and Academic Power*. Washington: American Council on Education, 1968.

18. Rodney T. Hartnett & John A. Centra. "Faculty Views of the Academic Environment: Situational vs. Institutional Perspectives." *Sociology of Education*. (in press)

19. John L. Holland. *The Psychology of Vocational Choice*. Waltham, Mass.: Blaisdell Publishing, 1966.

20. John L. Holland. "Explorations of a Theory of Vocational Choice: VI—A Longitudinal Study Using a Sample of Typical College Students." *Journal of Applied Psychology Monographs*, Vol. 52, No. 1, 1968.

21. C. Robert Pace. *Comparisons of CUES Results from Different Groups of Reporters*. College Entrance Examination Board Report No. 1, Los Angeles: University of California, 1966.

22. C. Robert Pace. *The Use of CUES in the College Admissions Process*. College Entrance Examination Board Report No. 2, Los Angeles: University of California, 1966.

23. C. Robert Pace. "Methods of Describing College Cultures." In Kauro Yamamoto (Ed.), *The College Student and His Culture: An Analysis*. Boston: Houghton Mifflin, 1968, Pp. 193-205.

24. C. Robert Pace. *College and University Environment Scales: Technical Manual* (2nd ed.). Princeton, N.J.: Educational Testing Service, 1969.

25. C. Robert Pace & Leonard L. Baird. "Attainment Patterns in the Environmental Press of College Subcultures." In Theodore M. Newcomb and Everett K. Wilson, (Eds.) *College Peer Groups*, Chicago: Aldine, 1966, Pp. 215-242.

26. C. Robert Pace & George G. Stern. "An Approach to the Measurement of Psychological Characteristics of College Environments." *Journal of Educational Psychology*, Vol. 49, 1958, Pp. 269-277.

27. C. Robert Pace & George G. Stern. *A Criterion Study of College Environments*. College Entrance Examination Board Report, Syracuse, N.Y.: Syracuse University, 1958.

28. Richard E. Peterson. *Technical Manual: College Student Questionnaires*. Princeton, N.J.: Educational Testing Service, 1965.

29. Richard E. Peterson. *The Crisis of Purpose: Definition and Uses of Institutional Goals*. Washington, D.C.: ERIC Clearinghouse of Higher Education, 1970.

30. Richard E. Peterson, John A. Centra, Rodney T. Hartnett & Robert L. Linn. *Institutional Functioning Inventory: Technical Manual*. Princeton, N.J.: Educational Testing Service, 1969.

31. David Riesman & Christopher Jencks. "The Viability of The American College." In Nevitt Sanford (Ed.), *The American College*, New York: John Wiley and Sons, Inc., 1962, Pp. 74-192.

32. James M. Richards, Jr. & Larry A. Braskamp. "Who Goes Where to Junior College?" In Leo A. Munday (Ed.) *The Two-Year College and Its Students: An Empirical Report*. Iowa City: American College Testing Program, 1969.

33. James M. Richards, Jr., Lorraine M. Rand & Leonard P. Rand. "Description of Junior Colleges." *Journal of Educational Psychology*, Vol. 57, 1966, pp. 207-214.

34. James M. Richards, Jr., Lorraine M. Rand & Leonard P. Rand. "A Description of Medical College Environments." *American Educational Research Journal* Vol. 5, 1968, Pp. 647-658.

35. James M. Richards Jr., Richard Seligman & Paul K. Jones. "Faculty and Curriculum as Measures of College Environment." *Journal of Educational Psychology*, Vol. 61, 1970, Pp. 324-332.

36. Masu Sasajima, Junius A. Davis & Richard E. Peterson. "Organized Student Protest and Institutional Climate." *American Educational Research Journal*, Vol. 5, 1968, Pp. 291-304.

37. David R. Saunders. *A Factor-Analytic Study of the AI and the CCI*. New York: College Entrance Examination Board, 1962.

38. George G. Stern. "Characteristics of the Intellectual Climate in College Environments." *Harvard Educational Review*, Vol. 33, 1963, Pp. 5-41.

39. George G. Stern. *People in Context*. New York: Wiley & Sons, Inc., 1970.

40. Donald L. Thisthletwaite. "College Press and Changes in Study Plans of Talented Students." *Journal of Educational Psychology*, Vol. 51, 1960, Pp. 222-234.

41. Donald L. Thisthletwaite. "Effects of Teacher and Peer Subcultures Upon Student Aspiration." *Journal of Educational Psychology*, Vol. 57, 1966, Pp. 35-47.

42. Norman P. Uhl. *Identifying Institutional Goals: Encouraging Convergence of Opinion through the Delphi Technique*. National Laboratory for Higher Education Research Monograph No. 2. Durham, N.C.: National Laboratory for Higher Education, 1971.

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